

# 承 认 书

Approval Sheet

客户 (Customer): /

客户料号 (Cus .P/N): /

华联威料号 (HLW P/N): I&&A)%%A; \*%S%+

品名规格 (PronameSpec): `IG` 5: `\*"'` - \$

送样日期 (Delivery Date): 2021/12/22

承认日期 (Acknowledge Date): 2021/12/22

|   |                  |                           |                    |
|---|------------------|---------------------------|--------------------|
| Approved No:  |                  | 客 户<br>Customer           |                    |
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|   |                  |                           |                    |
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| REV. | ECN.NO.      | APPD.       |
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| A    | EXXXXXXXXXXX | yangguifeng |

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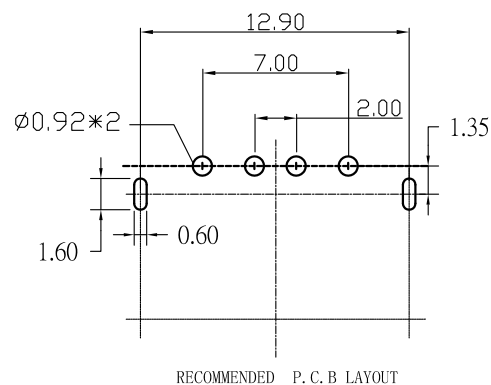
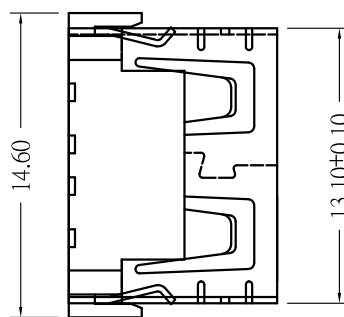
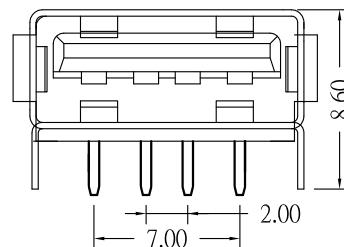
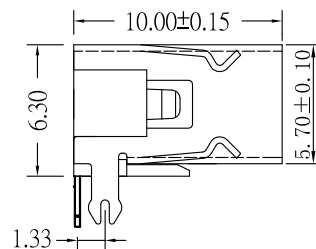
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RECOMMENDED P.C.B LAYOUT

## NOTES:

## 1.MATERIAL:

1.1 Housing:thermoplastic plastics

1.2 terminals:Copper Alloy

Gold plated in contact area:

Tin plated in termination

Nickel Plated overall

1.3 Shell:Steel&amp;Copper Alloy

Nickel Plated overall

## 2.ELECTRICAL CHARACTERISTICS:

2.1 Rating Current :1.5 Ampere

2.2 Rating Voltage :30 V Max

2.3 Contact Resistance:30 Milli ohms

2.4 Insulation Resistance:1000 Mega ohms Min.

## 3.MECHANICAL CHARACTERISTICS:

3.1 Connector Mating force: 35N MAX(3.57Kgf)

3.2 Connector Unmating force:10N min(1.02Kgf)

3.3 Durability:1500Cycles.

## 4.ENVIRONMENT CHARACTERISTICS:

4.1 Operating temperature:-0°C to +50°C

4.2 Storage temperature:-20°C to +60°C

U221-511X-XXXOX7

1: 铁壳镀镍

1: 吸塑盒

G: 半金 G/Fu"

1: 黑色

6: LCP

| TOLERANCE UNLESS OTHERWISE SPECIFIED |             | HLW 深圳市华联威电子科技有限公司                          |                        |       |        |      |
|--------------------------------------|-------------|---|------------------------|-------|--------|------|
| .XXX ±0.10                           | .X' ±3'     | HUA LIAN WEI TECHNOLOGY ELECTRONICS CO;LTD. |                        |       |        |      |
| .XX ±0.20                            | .XX' ±2'    |   |                        |       |        |      |
| .X ±0.30                             |             |   |                        |       |        |      |
| APPROVED                             |             | PART NAME:                                  | USB AF短体长度10.0高度6.3无卷边 |       |        |      |
| CHECKED                              |             | PART No:                                    | U221-5111-G61017       |       |        | C    |
| DRAWN                                | yangguifeng | PROJECTION:                                 | UNIT:                  | SCALE | SHEET  | REV. |
| DATE                                 | 2021.12.01  |   | mm                     | 1:1   | 1 OF 1 | A    |

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### USB2.0系列产品SPEC

版本版次: C

制定日期 20200707

适用范围 通用

## 1. Scope (范围)

## 1.1 Contents(内容)

This specification covers the performance, tests and quality requirements for the Electronics USB2.0 Connector.

(此份产品规格适用于USB2.0连接器的产品功能, 测试方法及质量要求)

## 2. Requirements (要求):

## 2.1 Rating(额定条件)

A. Voltage rating(额定电压):30V AC

B. Current rating(额定电流):1.5A

C. Operation Temperature Range(操作温度范围):0°C to +50°C

## 3. Test Condition(测试条件):

3.1 Temperature range(温度范围):-+15°C to +35°C

3.2 Humidity range (湿度范围):25% to 85%

## 4. Test Methods and Requirements:(测试方法及要求)

## 4.1 Examination of product (产品外观)

|       |                                |              |  |
|-------|--------------------------------|--------------|--|
| 4.1.1 | Examination of Product<br>产品外观 | Visual<br>目视 | No peeling off the plating deformation of the base or damage.<br>不得有电镀层剥落, 塑料变形或破损 |
|-------|--------------------------------|--------------|--|

## 4.2. Electrical Performance(电气性能)

|       |                            |  |   |
|-------|----------------------------|--|---|
| 4.2.1 | Contact Resistance<br>接触阻抗 | (EIA-364-06B)<br>Mated connectors,<br>Contact: measure by dry circuit, 30 m Volts maximum,20 mA<br><br>配对的连接器,<br>端子: 测试端子在回路中施加直流最大30mV 20mA的电流再测端子的电阻值 | Initial Contact resistance Excluding conductor Resistance:30 mΩ max (Target design value)<br><br>接触电阻初始值最大不能超过30 mΩ (目标设计值) |
|-------|----------------------------|--|---|

|                                  |                                       |   |   |
|----------------------------------|---------------------------------------|---|---|
| 4.2.2                            | Dielectric Withstanding Voltage (耐电压) | (EIA-364-20C)<br>Unmated connectors, apply 500V AC (RMS.) for 1 minute between adjacent terminals of ground.<br><br>没有配对的连接器在相邻的端子或接地之间通上500V的交流电压1分钟   | 1. No Breakdown or flashover<br>2. Leakage current:0.5mA Max<br><br>1. 不能有损坏或跳火花<br>2. 漏电流<0.5mA  |
| 4.2.3                            | Insulation Resistance 绝缘阻抗            | (EIA-364-21C)<br>Unmated connectors, apply 500V DC for 1 minute between adjacent terminals of ground.<br>没有配对的连接器在相邻的端子或接地之间通上500V的直流电压1分钟  | 1000MΩ min (unmated)<br><br>没有配对需大于1000 MΩ  |
| 4.3 Mechanical Performance(机械性能) |                                       |   |   |
| 4.3.1                            | Insertion/Withdrawal Force 插入力/拔出力    | (EIA-364-13)<br>Insertion and withdrawal speed: 25mm/minute.<br>插入和拔出的速度为25mm/分   | Maximum insertion force 35N 插入力不超过35N(3.57kg)<br>Withdrawal force 9.8N min 10N max 拔出力最小10N (1.02kg)  |
| 4.3.2                            | Durability 寿命测试                       | (EIA-364-09)<br>Measure contact and shell resistance after the Following.<br>Automatic cycling:1500 cycles at 100±5 Cycles per hour.<br>以每小时100±5插拔次数测试1500循环后测量端子的接触阻抗   | Contact Resistance 接触阻抗<br>Contact: Change from initial Value: 30 milliohms maximum.<br>端子: 从初始值开始变化量小于30mΩ<br>Maximum insertion force 35N 插入力不超过35N(3.57kg)<br>Withdrawal force 9.8N min 8N max 拔出力最小8N (1.02kg) |
| 4.3.3                            | Vibration 振动                          | (EIA-364-28条件3)<br>Amplitude:1.52mm P-P or 147m/s <sup>2</sup> {15G}<br>Sweep time: 50-2000-50Hz in 20 minutes.<br>Duration: 12 times in each (total of 36 times) X, Y, Z, axes.<br>Electrical load DC 100mA current shall be flowed during the test.(ANSI/EIA-364-28 Condition III)<br>在直流100毫安通电状态下测试, 在X,Y,Z垂直3方向上, 频率50-2000-50赫兹(加速度往复20分钟), 全振幅1.52mm P-P或147 m/s <sup>2</sup> {15G}, 每轴12回计36回 | Appearance: No damage<br>外观: 无损坏<br>Contact Resistance 接触阻抗<br>Contact: Change from initial Value:30mΩ Max.<br>端子: 从初始值开始变化量小于30mΩ<br>Shell Part: Change from initial Value:50mΩ Max.<br><br>间断性: 不超过1微秒          |

|                               |                            |  |   |
|-------------------------------|----------------------------|--|---|
| 4.3.4                         | Physical shock<br>冲击性      | <p>(EIA-364-27条件A)</p> <p>Pulse width: 11msec</p> <p>Waveform: Half-sine</p> <p>490m/s<sup>2</sup> (50G) 3 strokes in each X, Y, Z axes.</p> <p>(ANSI/EIA-364-27 condition A)</p> <p>周期: 11msec</p> <p>冲击波形: 正弦半波490m/s<sup>2</sup> (50G) 3 循环在X, Y, Z 轴</p>   | <p>Appearance: No damage</p> <p>外观: 无损坏</p> <p>Contact Resistance 接触阻抗</p> <p>Contact: Change from initial Value 30mΩ Max</p> <p>端子: 从初始值开始变化量小于30mΩ</p> <p>Discontinuity: 1μ sec Max.</p> <p>间断性: 不超过1微秒</p> |
| 4.4 Environmental Performance |                            |  |   |
| 4.4.1                         | Thermal shock test<br>冷热冲击 | <p>EIA-364-32C条件1)</p> <p>10 cycles of:</p> <p>a)-55±3°C for 30 minutes</p> <p>b) +85±3°C for 30 minutes</p> <p>10个循环,</p> <p>a)-55±3°C 30 分钟</p> <p>b) +85±3°C 30 分钟</p>  | <p>Appearance: No Damage.</p> <p>外观: 没有损坏</p> <p>Contact Resistance 接触阻抗</p> <p>Contact: Change from initial Value 30mΩ Max</p> <p>端子: 从初始值开始变化量小于30mΩ</p>  |
| 4.4.2                         | Solder ability<br>焊锡性      | <p>(EIA-364-52)</p> <p>To be sipped in the solder bath 245±5°C</p> <p>Coverage for 3 seconds.</p> <p>将焊锡脚浸在245±5°C的锡炉中&lt;3秒</p>   | <p>The inspected area of each lead must have 90% solder coverage minimum</p>  |
| 4.4.3                         | Humidity<br>恒温恒湿           | <p>(EIA-364-31B)</p> <p>(A) Mate connectors together and perform the test as follows</p> <p>配对的连接器测试条件</p> <p>Temperature: +25°C to +85°C(温度: +25°C到+85°C)</p> <p>Relative Humidity: 90% to 95%(相对湿度: 90%到95%)</p> <p>Duration:4 cycles(96 hours) (持续时间: 4个循环共96小时)</p> <p>Upon completion of the test, specimens shall be conditioned ambient room conditions for 24 hours, after which the specified measurements shall be performed.</p> <p>试验完成后, 样品放置于室温条件中24小时后再进行测试</p> | <p>Appearance: No Damage</p> <p>外观, 没有损坏</p> <p>Contact Resistance 接触阻抗</p> <p>Contact: Change from initial Value 30mΩ Max</p> <p>端子: 从初始值开始变化量小于30mΩ</p>   |

|        |                                     |   |  |
|--------|-------------------------------------|---|--|
|        |                                     | <p>(EIA-364-31B)</p> <p>(B) Unmated each connector and perform the test as follows.<br/>没有配对的连接器测试条件<br/>Temperature: +25°C to +85°C(温度: +25°C到+85°C)<br/>Relative Humidity: 90% to 95%(相对湿度: 90%到95%)<br/>Duration:4 cycles(96 hours) (持续时间: 4个循环共96小时)</p> <p>Upon completion of the test, specimens shall be conditioned ambient room conditions for 24 hours, after which the specified measurements shall be performed.<br/>试验完成后, 样品放置于室温条件中24小时后再进行测试</p>                        | <p>Appearance: No Damage<br/>外观, 没有损坏</p> <p>Conform to item of dielectric withstanding Voltage and Insulation Resistance.<br/>符合耐电压及绝缘阻抗要求</p>  |
| 4.4..4 | Salt Spray<br>盐水喷雾                  | <p>EIA-364-26B)</p> <p>Temperature: 35±2°C 温度: 35±2°C<br/>Concentration for salt: 50g±10g/1L 盐水浓度: 50±10g/L<br/>(1)Duration: 24H 持续时间: 24小时<br/>Condition(条件):<br/>Contact plated gold more than 15u" (include 15 u" ),and the material of shell for copper alloy, or stainless.<br/>端子镀金厚度大于等于15 u" 且壳体材质是铜合金或是不锈钢<br/>(2) Duration: 12H 持续时间: 12小时<br/>Condition(条件):<br/>Contact plated gold less than 15 u" ,and/or the material of shell for steel<br/>端子镀金厚度小于15u" 且/或壳体材质是铁材</p> | <p>No detrimental corrosion( Terminal solder tail unrequested)<br/>产品无氧化, 锈蚀 (端子焊脚镀锡处不作要求)</p> <p>Contact Resistance 接触阻抗<br/>Contact: Change from initial Value 30mΩ Max<br/>Shell Part: Change from initial Value 50mΩ Max<br/>端子: 从初始值开始变化量小于30mΩ<br/>外壳: 从初始值开始变化量小于50mΩ</p> |
| 4.4..5 | Cold resistance<br>(Unmated)<br>冷阻抗 | <p>(EIA-364-17B)</p> <p>Unmated connectors and expose to -25±3°C for 250 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.<br/>没配对的连接器放置于-25±3°C温度中250小时, 当完成实验后, 样品放置一般环境中1到2小时后, 在进行测试</p>   | <p>Appearance: No Damage.<br/>外观: 没有损坏</p> <p>Contact Resistance 接触阻抗<br/>Contact: Change from initial Value 30mΩ Max<br/>Shell Part: Change from initial Value 50mΩ Max<br/>端子: 从初始值开始变化量小于30mΩ<br/>外壳: 从初始值开始变化量小于50mΩ</p>   |

|        |                                     |  |  |
|--------|-------------------------------------|--|--|
| 4.4..6 | Heat resistance<br>(Unmated)<br>热阻抗 | <p>(EIA-364-17B)</p> <p>Mated connectors and expose to 85±2°C for 250 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.</p> <p>配对的连接器放置于85±2°C温度中250小时，当完成实验后，样品放置一般环境中1到2小时后，在进行测试</p>                             | <p>Appearance: No Damage.</p> <p>外观：没有损坏</p> <p>Contact Resistance 接触阻抗</p> <p>Contact: Change from initial Value 30mΩ Max</p> <p>Shell Part: Change from initial Value 50mΩ Max</p> <p>端子：从初始值开始变化量小于30mΩ</p> <p>外壳：从初始值开始变化量小于50mΩ</p> |
| 4.4..7 | Thermal Aging<br>高温老化               | <p>(EIA-364-31B, Condition 4, Method A)</p> <p>Unmated connectors and expose to +85±2°C for 250 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.</p> <p>没配对的连接器放置于+85±2°C温度中250小时，当完成实验后，样品放置一般环境中1到2小时后，在进行测试</p> | <p>Appearance: No Damage.</p> <p>外观：没有损坏</p> <p>Contact Resistance 接触阻抗</p> <p>Contact: Change from initial Value 30mΩ Max</p> <p>Shell Part: Change from initial Value 50mΩ Max</p> <p>端子：从初始值开始变化量小于30mΩ</p> <p>外壳：从初始值开始变化量小于50mΩ</p> |
| 4.4.8  | Resistance to Soldering Heat        | <p>for wave soldering : mil-std-202f,method 210 A,test condition B</p> <p>波峰焊：mil-std-202f, method 210 A, 试验条件B</p> <p>Pre-heat : 80°C, 60 Seconds 预热:80°C, 60秒</p> <p>Temperature : 260 ± 5 °C 温度:260±5°C</p> <p>Immersion duration : 10 ± 1 sec. 浸泡时间:10±1秒。</p>   | <p>No physical damage shall occur.</p> <p>不可有损坏</p>  |



for manual soldering :手动焊接:  
 mil-std-202f,method 210 A,test condition A  
 Pre-heat : No预热:没有  
 Temperature : 350 ± 10 °C温度:350±10°C  
 Immersion duration :3.5±0.5 sec.浸泡时间:3.5±0.5秒



Note 1: Shall meet visual requirements, show no physical damage, and meet requirement of additional tests as specified in the test sequence in Figures 2

说明1: 测试要求不能有物理损坏, 测试依据表格二的顺序进行

3.Product Qualification And Requalification Test:产品测试顺序表 Figure 2

| Test or Examination               | Test Group |     |     |   |     |     |     |     |     |     |     |     |     |   |
|-----------------------------------|------------|-----|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
|                                   | A          | B   | C   | D | E   | F   | G   | H   | I   | J   | K   | L   | M   | N |
| Test Sequence                     |            |     |     |   |     |     |     |     |     |     |     |     |     |   |
| 4.1.1.Examination of Product 产品外观 | 1,9        | 1,3 | 1,5 | 1 | 1,5 | 1,5 | 1,5 | 1,3 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1 |
| 4.2.1.Contact Resistance 接触阻抗     | 2,8        |     | 2,4 |   | 2,4 | 2,4 | 2,4 |     | 2,4 | 2,4 | 2,4 | 2,4 | 2,4 |   |

|                                       |     |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---------------------------------------|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.2.2.Dielectric Withstanding Voltage | 3,7 |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4.2.3. Insulation Resistance 绝缘阻抗     | 4,6 |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4.3.1. Insertion/Withdrawal force 插拔力 | 2   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4.3.2. Durability 寿命测试                |     | 3 |   |   |   |   |   |   |   |   |   |   |   |   |
| 4.3.3. Vibration 振动性                  |     |   |   | 3 |   |   |   |   |   |   |   |   |   |   |
| 4.3.4. Physical shock 冲击性             |     |   |   |   | 3 |   |   |   |   |   |   |   |   |   |
| 4.4.1. Thermal shock test 冷热冲击        |     |   |   |   |   | 3 |   |   |   |   |   |   |   |   |
| 4.4.2. Solderability 焊锡性              |     |   |   |   |   |   | 2 |   |   |   |   |   |   |   |
| 4.4.3. Humidity 恒温恒湿                  | 5   |   |   |   |   |   |   | 3 |   |   |   |   |   |   |
| 4.4.4. Salt Spray 盐水喷雾                |     |   |   |   |   |   |   |   | 3 |   |   |   |   |   |
| 4.4.5. Cold resistance 冷阻抗            |     |   |   |   |   |   |   |   |   | 3 |   |   |   |   |
| 4.4.6. Heat resistance 热阻抗            |     |   |   |   |   |   |   |   |   |   | 3 |   |   |   |
| 4.4.7. Thermal Aging 高温老化             |     |   |   |   |   |   |   |   |   |   |   | 3 |   |   |
| 4.4.8. IR-reflow 回流焊测试                |     |   |   |   |   |   |   |   |   |   |   |   |   | 2 |
| NO. of Test samples(Min.) 测试样         | 5   | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

NOTE 2: (a) Numbers indicate sequence in which tests are performed.

(b) Discontinuities shall not take place in this test group, during tests.

说明 2: (a)测试依照矩阵要求数量进行。

(b)在测试中，群组测试不能间断

核准：唐竹君

制作人：覃裕华



深圳市华联威电子科技有限公司  
SHENZHENHUALIANWEIELECTRONICS CO., LTD.

測試報告

TEST REPORT

|                   |                             |                         |                           |                                  |                                       |
|-------------------|-----------------------------|-------------------------|---------------------------|----------------------------------|---------------------------------------|
| 產品名稱<br>Part Name | USB AF 短体 6.3 两脚<br>直边 90 度 | 測試日期<br>Date of Testing | 2021-12-21-<br>2021-12-22 | 報告編號<br>Report NO.               | MD20211222-01                         |
| 產品型號<br>Part Name | U221-5111-G61017            | 樣品數量<br>Quan tity       | 5PCS                      | 測試環境<br>Measuring<br>Environment | 濕度 Temp:18~21°C 相對<br>濕度 R.H.:49%~57% |

一. 電性測試 ELECTRICAL TEST

| 序號<br>NO. | 測試項目<br>Testing Item                | 測試條件<br>Testing Conditions   | 測試設備<br>Testing Equipment         | 規格<br>SPEC                            | 測試記 UTesting Result |              |              |              |              | 判定<br>Judge |      |
|-----------|-------------------------------------|--|-----------------------------------|---------------------------------------|---------------------|--------------|--------------|--------------|--------------|-------------|------|
|           |                                     |  |                                   |                                       | 1                   | 2            | 3            | 4            | 5            | Pass        | Fail |
| 1         | Contact resis<br>tance              | Test current:100mA<br>max  | DIGITAL<br>MICROOHMMETER          | 30m Ω Max                             | 18.36<br>m Ω        | 17.55<br>m Ω | 18.29<br>m Ω | 16.72<br>m Ω | 16.18<br>m Ω | P           |      |
| 2         | Insula tion resis<br>tance          | Test voltage:500VDC<br>Operation stated:1min                           | ULTRA HIGH<br>RESISTANCE<br>METER | 1000M Ω Min                           | Pass                | Pass         | Pass         | Pass         | Pass         | P           |      |
| 3         | Dielec tric<br>withstand<br>voltage | Test voltage:500VAC<br>Cut-off current:0.5mA<br>Operation stated:1 min | BREAKDOWN<br>TESTER               | No discharge or<br>flashover<br>occur | Pass                | Pass         | Pass         | Pass         | Pass         | P           |      |

二. 機械特性測試 MECHANICAL TEST

| 序號<br>NO. | 測試項目<br>Testing Item | 測試條件<br>Testing Conditions  | 測試設備<br>Testing Equipment          | 規格<br>SPEC            | 測試記 UTesting Result |      |      |      |      | 判定<br>Judge |      |
|-----------|----------------------|---|------------------------------------|-----------------------|---------------------|------|------|------|------|-------------|------|
|           |                      |   |                                    |                       | 1                   | 2    | 3    | 4    | 5    | Pass        | Fail |
| 1         | Durability test      | Rat e:200cycles/hour<br>Total: 1500cycles                                   | LIFE TESTER FOR<br>CONNECTOR       | No physical<br>damage | Pass                | Pass | Pass | Pass | Pass | P           |      |
| 2         | Mating Force         | 35 Newtons maximum at<br>a maximum rare of<br>12.5mm(0.492") per minu<br>te | Insertion force<br>testing machine | No physical<br>damage | Pass                | Pass | Pass | Pass | Pass | P           |      |
| 3         | Un-Mating Force      | 10 Newtons minimum at a<br>maximum rare of<br>12.5mm(0.492") per minu<br>te | Insertion force<br>testing machine | No physical<br>damage | Pass                | Pass | Pass | Pass | Pass | P           |      |

三. 環境特性測試 ENVIRONMENTAL TEST

| 序號<br>NO. | 測試項目<br>Testing Item | 測試條件<br>Testing Conditions | 測試設備<br>Testing Equipment | 規格<br>SPEC | 測試記 UTesting Result |   |   |   |   | 判定<br>Judge |      |
|-----------|----------------------|----------------------------|---------------------------|------------|---------------------|---|---|---|---|-------------|------|
|           |                      |                            |                           |            | 1                   | 2 | 3 | 4 | 5 | Pass        | Fail |

|   |                            |   |   |                    |      |      |      |      |      |   |  |
|---|----------------------------|---|---|--------------------|------|------|------|------|------|---|--|
| 1 | Humidity-Temperature cycle | Temperature: 40±2°C<br>Humidity: 90-95% Duration:168H | PROGRAM CONTROLLED TEMP. & HUMIDITY CHAMBER | No physical damage | Pass | Pass | Pass | Pass | Pass | P |  |
| 2 | Heat test                  | Temperature: 70±2°C<br>Duration:168H                  | OVEN  | No physical damage | Pass | Pass | Pass | Pass | Pass | P |  |
| 3 | Cold test                  | Temperature: -25±3°C<br>Duration:168H                 | PROGRAM CONTROLLED TEMP. & HUMIDITY CHAMBER | No physical damage | Pass | Pass | Pass | Pass | Pass | P |  |
| 4 | Temperature cycling test   | Temperature: 70—25°C<br>Duration:5 cycle              | PROGRAM CONTROLLED TEMP. & HUMIDITY CHAMBER | No physical damage | Pass | Pass | Pass | Pass | Pass | P |  |

四.物理測試 PHYSICAL TEST

| 序號 NO.    | 測試項目 Testing Item                 | 測試條件 Testing Conditions   | 測試設備 Testing Equipment              | 規格 SPEC             | 測試記錄 Testing Result |      |      |      |      | 判定 Judge |      |
|-----------|-----------------------------------|---|-------------------------------------|---------------------|---------------------|------|------|------|------|----------|------|
|           |                                   |   |                                     |                     | 1                   | 2    | 3    | 4    | 5    | Pass     | Fail |
| 1         | Salt spray test                   | Temperature: 35±2°C<br>Concentration:5 ±1 %<br>Duration:24H                         | SALT SPRAY TESTER                   | No Oxidation        | Pass                | Pass | Pass | Pass | Pass | P        |      |
| 2         | Resistance to soldering heat test | Temperature: 265±5°C<br>Duration:10 ±1sec   | OVEN                                | No physical damage  | Pass                | Pass | Pass | Pass | Pass | P        |      |
| 3         | Solder ability test               | Temperature: 265±5°C<br>Duration:10 ±1 sec  | CONTROLLED CONSTANT-TEMP SOLDER POT | Soldering area 295% | Pass                | Pass | Pass | Pass | Pass | P        |      |
| 判定 Result |                                   | <input checked="" type="checkbox"/> 合格(ACCEPT) <input type="checkbox"/> 不合格(REJECT) |                                     |                     |                     |      |      |      |      |          |      |

核准(Approver): 欠必鋒

測試(Tester): 但芬



# 深圳市华联威电子科技有限公司

## 檢驗報告

首件檢驗
 入庫檢驗
 出貨檢驗
 客退檢驗
 退料檢驗
 其他
 2021年12月22日 版次:A1

| 料號   | U221-5111-G61017  | 制令單號  | /       |           | 送檢單位     | 工程部       | 首件製作者 | 裝配       |          |     |     |     |    |
|--|---|---|---------|-----------|----------|-----------|-------|----------|----------|-----|-----|-----|----|
| 品名   | USB AF短体 6.3 两脚直边90度  | 客戶代號  | /       |           | 批 量      | /         | 送檢時間  | /        |          |     |     |     |    |
|  |   |   |         |           | 數 量      | 5PCS      | 確認時間  | /        |          |     |     |     |    |
| 抽樣標準   |   | <input checked="" type="checkbox"/> 單次 <input type="checkbox"/> 雙次  |         |           | 抽样数      | AQL       | CRI:0 | MAJ:0.40 | MIN:0.65 |     |     |     |    |
| MIL-STD-105E(II)                                       |   | <input checked="" type="checkbox"/> 正常 <input type="checkbox"/> 加嚴 <input type="checkbox"/> 減量  |         |           | ( 5PCS ) | ACC/REJ   | 0     | /        | /        |     |     |     |    |
| 不良数:   |   | CRI ( / )   |         | MAJ ( / ) |          | MIN ( / ) |       | 不良率(%)   | /        |     |     |     |    |
| NO.  | 檢驗項目<br>單位:MM/G   | 檢測<br>儀器  | 檢 驗 記 錄 |           |          |           |       | 品管判定     |          | CRI | MAJ | MIN | 備注 |
|  |   |   | 1       | 2         | 3        | 4         | 5     | AC       | RE       |     |     |     |    |
| 尺<br>寸<br>測<br>量                                       | 10.00±0.15  | D   | 10.05   | 10.02     | 10.03    | 10.05     | 10.06 | √        |          |     |     |     |    |
|  | 6.30±0.20   | D   | 6.33    | 6.32      | 6.33     | 6.33      | 6.35  | √        |          |     |     |     |    |
|  | 1.33±0.20   | D   | 1.30    | 1.30      | 1.31     | 1.33      | 1.32  | √        |          |     |     |     |    |
|  | 5.70±0.10   | D   | 5.71    | 5.71      | 5.72     | 5.75      | 5.73  | √        |          |     |     |     |    |
|  | 7.00±0.20   | D   | 7.01    | 7.02      | 7.05     | 7.06      | 7.08  | √        |          |     |     |     |    |
|  | 2.00±0.20   | D   | 2.10    | 2.13      | 2.10     | 2.10      | 2.10  | √        |          |     |     |     |    |
|  | 8.60±0.20   | D   | 8.65    | 8.65      | 8.63     | 8.61      | 8.62  | √        |          |     |     |     |    |
|  | 14.60±0.20  | D   | 14.61   | 14.62     | 14.62    | 14.63     | 14.62 | √        |          |     |     |     |    |
|  | 13.10±0.20  | D   | 13.11   | 13.12     | 13.15    | 13.14     | 13.10 | √        |          |     |     |     |    |
|  |   |   |         |           |          |           |       |          |          |     |     |     |    |
|  |   |   |         |           |          |           |       |          |          |     |     |     |    |
|  |   |   |         |           |          |           |       |          |          |     |     |     |    |
|  |   |   |         |           |          |           |       |          |          |     |     |     |    |
|  |   |   |         |           |          |           |       |          |          |     |     |     |    |
|  | 檢驗依據: <input checked="" type="checkbox"/> 《工程圖紙》 <input type="checkbox"/> 《檢驗規範》 <input type="checkbox"/> 《承認書》 <input type="checkbox"/> 樣品 <input type="checkbox"/> 其它 |   |         |           |          |           |       |          |          |     |     |     |    |
| 檢測儀器:A游標卡尺 B千分尺 C厚薄儀 D投影鏡 E放大鏡 F顯微鏡 G錫爐 H插拔力器 I間位尺 J其它 |   |   |         |           |          |           |       |          |          |     |     |     |    |
| 品保判定:  |   | <input checked="" type="checkbox"/> 合格Accept <input type="checkbox"/> 退貨Reject <input type="checkbox"/> 特采Waive <input type="checkbox"/> 挑選Sort |         |           |          |           |       |          |          |     |     |     |    |

核准: 欠必鋒

审核: 刘联英

检验员: 但芬

|                               |          |         |               |            |          |
|-------------------------------|----------|---------|---------------|------------|----------|
| 品名: USB AF短体 6.3 两脚直边90度(端子)  |          |         |               |            | 版次:A.0   |
| 电镀规格:Ni40u", Sn100u", AuG/Fu" |          |         | 日期:2021-10-26 | 页次:1/1     |          |
| 厂商:同华                         |          |         |               |            |          |
| 测试设备:CMI X-射线膜厚测试仪            |          |         |               |            |          |
| 1、底层电镀测试 (Ni)                 |          |         |               |            |          |
| 数据                            | 测试标准     | 实测值     | 判定            | 测试日期       | 测试时间     |
| 1                             | 40u"MIN  | 60.5u"  | OK            | 2021/10/26 | 14:15:03 |
| 2                             | 40u"MIN  | 58.3u"  | OK            | 2021/10/26 | 14:15:05 |
| 3                             | 40u"MIN  | 67.5u"  | OK            | 2021/10/26 | 14:15:07 |
| 4                             | 40u"MIN  | 62.4u"  | OK            | 2021/10/26 | 14:15:09 |
| 2、表层电镀测试 (Sn)                 |          |         |               |            |          |
| 数据                            | 测试标准     | 实测值     | 判定            | 测试日期       | 测试时间     |
| 1                             | 100u"MIN | 105.3u" | OK            | 2021/10/26 | 14:20:12 |
| 2                             | 100u"MIN | 112.7u" | OK            | 2021/10/26 | 14:20:14 |
| 3                             | 100u"MIN | 118.9u" | OK            | 2021/10/26 | 14:20:16 |
| 4                             | 100u"MIN | 114.3u" | OK            | 2021/10/26 | 14:20:18 |
| 3、表层电镀测试 (Au)                 |          |         |               |            |          |
| 数据                            | 测试标准     | 实测值     | 判定            | 测试日期       | 测试时间     |
| 1                             | G/Fu"MIN | 1.25u"  | OK            | 2021/10/26 | 14:25:06 |
| 2                             | G/Fu"MIN | 1.37u"  | OK            | 2021/10/26 | 14:25:08 |
| 3                             | G/Fu"MIN | 1.23u"  | OK            | 2021/10/26 | 14:25:10 |
| 4                             | G/Fu"MIN | 1.12u"  | OK            | 2021/10/26 | 14:25:12 |

核准: 欠必锋

审核: 刘联英

检验员: 但芬

HLWconn® 深圳市华联威电子科技有限公司  
电镀报告表

| 品名: USB AF短体 6.3 两脚直边90度(外壳)   |               | 版次:A.0 |    |            |          |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
|--|---------------|--------|----|------------|----------|----|------|------|---|---------|--------|----|------------|----------|---|---------|--------|----|------------|----------|---|---------|--------|----|------------|----------|---|---------|--------|----|------------|----------|
| 电镀规格:Cu:40u"MIN, Ni:50u"MIN  | 日期:2021/11/11 | 页次:1/1 |    |            |          |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 厂商:金和源   |               |        |    |            |          |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 测试设备:CMI X-射线膜厚测试仪   |               |        |    |            |          |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 1、底层电镀测试(Cu)   |               |        |    |            |          |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| <table border="1"><thead><tr><th>数据</th><th>测试标准</th><th>实测值</th><th>判定</th><th>测试日期</th><th>测试时间</th></tr></thead><tbody><tr><td>1</td><td>40u"min</td><td>45.3u"</td><td>OK</td><td>2021/11/11</td><td>19:55:05</td></tr><tr><td>2</td><td>40u"min</td><td>48.5u"</td><td>OK</td><td>2021/11/11</td><td>19:55:57</td></tr><tr><td>3</td><td>40u"min</td><td>44.2u"</td><td>OK</td><td>2021/11/11</td><td>19:56:48</td></tr><tr><td>4</td><td>40u"min</td><td>45.6u"</td><td>OK</td><td>2021/11/11</td><td>19:57:31</td></tr></tbody></table> |               |        | 数据 | 测试标准       | 实测值      | 判定 | 测试日期 | 测试时间 | 1 | 40u"min | 45.3u" | OK | 2021/11/11 | 19:55:05 | 2 | 40u"min | 48.5u" | OK | 2021/11/11 | 19:55:57 | 3 | 40u"min | 44.2u" | OK | 2021/11/11 | 19:56:48 | 4 | 40u"min | 45.6u" | OK | 2021/11/11 | 19:57:31 |
| 数据   | 测试标准          | 实测值    | 判定 | 测试日期       | 测试时间     |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 1  | 40u"min       | 45.3u" | OK | 2021/11/11 | 19:55:05 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 2  | 40u"min       | 48.5u" | OK | 2021/11/11 | 19:55:57 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 3  | 40u"min       | 44.2u" | OK | 2021/11/11 | 19:56:48 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 4  | 40u"min       | 45.6u" | OK | 2021/11/11 | 19:57:31 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 2、表层电镀测试(Ni)   |               |        |    |            |          |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| <table border="1"><thead><tr><th>数据</th><th>测试标准</th><th>实测值</th><th>判定</th><th>测试日期</th><th>测试时间</th></tr></thead><tbody><tr><td>1</td><td>50u"min</td><td>57.3u"</td><td>OK</td><td>2021/11/11</td><td>19:58:12</td></tr><tr><td>2</td><td>50u"min</td><td>55.6u"</td><td>OK</td><td>2021/11/11</td><td>19:59:04</td></tr><tr><td>3</td><td>50u"min</td><td>56.2u"</td><td>OK</td><td>2021/11/11</td><td>20:01:44</td></tr><tr><td>4</td><td>50u"min</td><td>58.3u"</td><td>OK</td><td>2021/11/11</td><td>20:02:36</td></tr></tbody></table> |               |        | 数据 | 测试标准       | 实测值      | 判定 | 测试日期 | 测试时间 | 1 | 50u"min | 57.3u" | OK | 2021/11/11 | 19:58:12 | 2 | 50u"min | 55.6u" | OK | 2021/11/11 | 19:59:04 | 3 | 50u"min | 56.2u" | OK | 2021/11/11 | 20:01:44 | 4 | 50u"min | 58.3u" | OK | 2021/11/11 | 20:02:36 |
| 数据   | 测试标准          | 实测值    | 判定 | 测试日期       | 测试时间     |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 1  | 50u"min       | 57.3u" | OK | 2021/11/11 | 19:58:12 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 2  | 50u"min       | 55.6u" | OK | 2021/11/11 | 19:59:04 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 3  | 50u"min       | 56.2u" | OK | 2021/11/11 | 20:01:44 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |
| 4  | 50u"min       | 58.3u" | OK | 2021/11/11 | 20:02:36 |    |      |      |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |   |         |        |    |            |          |

核准: 欠必锋

审核: 刘联英

检验员: 但芬

## 盐水喷雾实验报告

|  |                                  |         |                     |
|--|----------------------------------|---------|---------------------|
| 试验方法   | 盐水喷雾腐蚀试验法                        | 参考资料    | MIL-STD-1216        |
| METHOD   | NEUTRL SALT SPRAY CORROSION TEST | REF     |                     |
| 客户   | /                                | 试验起始日期  | 2021年12月21日20:00 时起 |
|  |                                  | DATE    | 2021年12月22日08:00 时止 |
| 样品名称   | USB AF短体 6.3 两脚直边90度             | 试验数量    | 5PCS                |
| P/N  | U221-5111-G61017                 | QTY     |                     |
| 试验条件 (TEST CONDITION)  |                                  |         |                     |
| 1、盐水溶解 (SALT SOLUTION: 浓度 $50 \pm 10\text{g/L}$ , PH值6.5-7.2.  |                                  |         |                     |
| 2、试验室温度 (TEMP. IT THE SPRAY DHAMBR): $35 \pm 1^\circ\text{C}$ .  |                                  |         |                     |
| 3、盐水桶温度 (TEMP. OF SALE SOL' N TANK): $35 \pm 1^\circ\text{C}$ .  |                                  |         |                     |
| 4、压力桶温度 (TEMP. OF SAR SUPPLIERY): $47 \pm 1^\circ\text{C}$ .   |                                  |         |                     |
| 5、试验室相对湿度 (R.H IN THE CHAMBER ) 85%.   |                                  |         |                     |
| 6、压缩空气压力 (COMPRESSED AIR PRESSURE): $1.00 \pm 0.01\text{Kg/cm}^2$ .  |                                  |         |                     |
| 7、样品放置位置 (SPECIMEN SUPPORTED ANGLE ): 尼龙绳吊挂 $70^\circ - 90^\circ$ .  |                                  |         |                     |
| 8、喷雾收集量 (COLLECT RATE OF SALT SOL' N) $1-2\text{mL}/(8\text{ cm}^2\text{hr})$ .  |                                  |         |                     |
| 9、盐雾测试时间: 12小时 (H)   |                                  |         |                     |
| 判定方法 (ADFUSGD METHOD )   |                                  |         |                     |
| 试验后以20倍放大镜检查、无蓝、绿色腐蚀物之现象 (不包含折弯处), 即判定合格. (Inspext the ecimen at 20 xmagnification no blue or green corrosion products are acceptable) |                                  |         |                     |
| 样品序号   | 试验后现象                            | 判定      |                     |
|  | PHENOMENON AFTER TEST            | COMMENT |                     |
| 1  | 无蓝、绿色腐蚀物之现象                      | OK      |                     |
| 2  | 无蓝、绿色腐蚀物之现象                      | OK      |                     |
| 3  | 无蓝、绿色腐蚀物之现象                      | OK      |                     |
| 4  | 无蓝、绿色腐蚀物之现象                      | OK      |                     |
| 5  | 无蓝、绿色腐蚀物之现象                      | OK      |                     |
|  |                                  |         |                     |
|  |                                  |         |                     |
|  |                                  |         |                     |

核准: 欠必锋

试验员: 但芬



# 东莞市海嵘兴塑胶有限公司

## LCP材质分析报告

| 品 名     | 比 例   | 用 途            |
|---------|-------|----------------|
| 杜邦LCP树脂 | 0.68  | 构成材料主要成份       |
| 抗氧剂     | 0.003 | 抗氧化            |
| 日本住友TAP | 0.002 | 润滑及增加流动性       |
| 大洋安定剂   | 0.005 | 稳定机械性能, 方便重复使用 |
| 玻纤      | 0.30  | 增强             |
| 色母      | 0.01  | 着色             |

注：以上数据真实可靠，但并非绝对值，并不做任何商业依据。



# 佛山市顺德区天硕贸易有限公司

Foshan Shunde Tianshuo Trade Company Limited

日期: 2021-10-19

编号: FB2110136

| 收货单位PURCHASER: _____<br>检验标准SPECIFICATION: <u>JIS G 3141</u> |                 |                                 |                    | 产品名称: <u>SPCC-SD</u><br>检验情况: <u>合格</u> |        |         |         |        |        |         |                           |              |                |            |            |
|--|-----------------|---------------------------------|--------------------|---|--------|---------|---------|--------|--------|---------|---------------------------|--------------|----------------|------------|------------|
| 产品规格<br>SPECIFICATION<br>MM                                  | 钢卷号<br>COIL. NO | 材质牌号<br>SYMBOL<br>OF<br>QUALITY | 净重<br>WEIGHT<br>KG | 化学成份CHEMICAL COMPOSITION                |        |         |         |        |        |         | 力学性能MECHANICAL PROPERTIES |              |                |            |            |
|  |                 |                                 |                    | Fe<br>%                                 | C<br>% | Mn<br>% | Si<br>% | P<br>% | S<br>% | AI<br>% | 抗拉强度T.S<br>Mpa            | 延伸率EL<br>(%) | 屈服强度Y.S<br>Mpa | 杯突<br>(mm) | 硬度<br>(HV) |
| 0.30x1250  | DL45657         | SPCC-SD                         | 7835               | 99                                      | 0.031  | 0.17    | 0.07    | 0.22   | 0.24   |         | 361                       | 29           | 259            |            | 143        |
| 0.30x1250  | DL45658         | SPCC-SD                         | 7690               | 99                                      | 0.032  | 0.16    | 0.07    | 0.21   | 0.22   |         | 362                       | 30           | 256            |            | 141        |
|  |                 |                                 |                    |   |        |         |         |        |        |         |                           |              |                |            |            |
|  |                 |                                 |                    |   |        |         |         |        |        |         |                           |              |                |            |            |
|  |                 |                                 |                    |   |        |         |         |        |        |         |                           |              |                |            |            |

质量控制中心:

审核: 谢和钢

制表人: 胡万银



# 鉅鼎銅材廠檢驗報告單

|                              |                          |                      |                                |                        |                                   |                             |                                      |                       |      |    |
|------------------------------|--------------------------|----------------------|--------------------------------|------------------------|-----------------------------------|-----------------------------|--------------------------------------|-----------------------|------|----|
| 公司名稱<br>Customer             | 鉅鼎銅材廠檢驗報告單               |                      |                                |                        | 重量<br>Weight(kg)                  | 1078                        | 出貨日期<br>Date                         | 2021/11/23            |      |    |
| 品名<br>Article                | 標準<br>Standard No        |                      |                                |                        | 尺寸<br>Dimension                   |                             | 狀態<br>Tenper                         | 銅卷編號<br>Coil No       |      |    |
| C2680                        | JISH3100:2017            |                      |                                |                        | 0.18*400                          |                             | EH                                   | 1021-C-08             |      |    |
| 化學成分Chemical Compositions(%) |                          |                      |                                |                        |                                   |                             |                                      |                       |      |    |
| 元素<br>Element                | Cu %                     | Zn%                  | Pb%                            | Fe%                    | \                                 | \                           | \                                    | \                     | 化學成分 | 雜質 |
| 規範<br>Spec                   | 64.0-68.0                | 餘量                   | <0.05                          | <0.05                  | \                                 | \                           | \                                    | \                     | 合格   | 合格 |
| 實測<br>Actual                 | 64.32                    | 餘量                   | 0.0036                         | 0.0136                 | \                                 | \                           | \                                    | \                     | 合格   | 合格 |
| 機械性質Mechanical Properties    |                          |                      |                                |                        |                                   |                             |                                      |                       |      |    |
| 項目<br>Item                   | 結晶粒度<br>Grain Size<br>Mm | 硬度<br>Hardness<br>Hv | 抗拉強度<br>TensionStrength<br>Mpa | 伸長度<br>Elongation<br>% | 導電率<br>Electrical Conduc<br>%IACS | 彎曲試驗<br>Bending Test<br>180 | 表面粗度<br>Surface Roughness<br>Ra(u m) | 彎曲度<br>Camber<br>mm/n |      |    |
| 規範MAX<br>Spec                | \                        | 170-190              | 490-610                        | \                      | \                                 | \                           | \                                    | \                     |      |    |
| 實測<br>Actual                 | \                        | 178                  | 574                            | 5                      | \                                 | \                           | \                                    | \                     |      |    |

品質部

